

ABSTRACT OF THE DISCLOSURE  
SCALABLE RUNTIME SYSTEM FOR GLOBAL ADDRESS SPACE  
LANGUAGES ON SHARED AND DISTRIBUTED MEMORY MACHINES

An improved scalability runtime system for a global address space language running on a distributed or shared memory machine uses a directory of shared variables having a data structure for tracking shared variable information that is shared by a plurality of program threads. Allocation and de-allocation routines are used to allocate and de-allocate shared variable entries in the directory of shared variables. Different routines can be used to access different types of shared data. A control structure is used to control access to the shared data such that all threads can access the data at any time. Since all threads see the same objects, synchronization issues are eliminated. In addition, the improved efficiency of the data sharing allows the number of program threads to be vastly increased.

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